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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,496	01/09/2002	Brian Eric Lindholm	57761.000185	6659

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EXAMINER

DATSKOVSKIY, MICHAEL V

ART UNIT	PAPER NUMBER
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2835

DATE MAILED: 06/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary

Application No.

09/683,496

Applicant(s)

LINDHOLM ET AL.

Examiner

Michael Datskovsky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 06/12/2003 have been fully considered but regarding to the rejections under 35 U.S.C. § 102, § 103 and § 112 they are not persuasive.

Regarding to the Rejection of the claim 16 under 35 U.S.C. § 112:

First: Although it is inherent that liquid cooling provides less heated air radiated from a heat generating element(s), the same amount of heat will be radiated from an air cooled heat exchanger. In the current case it is an air-cooled heat exchanger 32 shown in Fig.5 shown as being also located proximal to the power converter 44. It is inherent that an improved cooling efficiency claimed by the applicant would occurred only if said heat exchanger would be located structurally (and/or thermally) isolated from said power converter 44, which has not been required by the specification of the current application.

Hence, it is not clear how such improved cooling efficiency will take place. Second:

Even if applicant would address the above-mentioned discrepancies, such improved cooling efficiency would represent a positive effect of using applicant's invention, but not an apparatus structure distinguishing applicant's invention from the Prior Art. Based on the above the Rejection of the claim 16 under 35 U.S.C. § 112 stays.

Regarding to the Rejection of the claims 1-46 under 35 U.S.C. § 102 and § 103:

Examiner disagrees with applicant's interpretation of the reference by Gaia:

First: Blade-like metallic terminal 16 is integral with a metallic end bell 14, and no matter how applicant would like to number or name it, an assemble comprising these two parts is a terminal. Therefore, a coolant passage in form of a hollow portion 36 of a fastener

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12 and a copper (col.3, lines 55-56) tubular mounting means 30, being flared and soldered to the metallic end bell 14 (which is inherently a part of the terminal) will definitely provide a thermally conductive connection of said coolant passage 30 to said end terminal (14 or 16, whatever applicant would prefer).

Second: According to the Fig.2 in the reference by Gaia two coolant passage comprising fasteners 12 definitely interconnect and divide terminal bells 14 and fuses 20 into two equally sized regions (two halves of the bells 14 and two pairs of fuses 20).

Therefore, rejection of the claims 1-46 under 35 U.S.C. § 102 and § 103 stay.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Neither specification nor drawings comprise any explanation about the structure providing improved cooling efficiency of the air-cooled devices proximate to the one of more electrical protective devices.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-8, 13-14, 18-27, 29, 35, 39-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Gaia.

Gaia teaches an apparatus 10, Figs.1-6, for cooling a fuse array mounted between two electrical terminals comprising: two fasteners 12 comprising coolant passages (30, 36) being thermally-conductively attached (flared 38 and soldered) to each of the electrical terminals 14/16 (metallic end bells 14 integral with metallic terminals 16) between fuse columns such that said fasteners 12 comprising the coolant passages divide each of the electrical terminals 14 into approximately equally sized zones; and grouping of fuses 20 attached to and disposed respectively intermediate the two electrical terminals 14/16 in each of the approximately equally sized regions. Gaia teaches furthermore: each fuse 20 has opposite longitudinal ends 30 each being mounted (flared and soldered) to the electrical terminal 14/16; there are two coolant sources (col.3, lines 48-60) connected to the coolant passages 30/36 of the fasteners 12 through non-conductive (plastic) conduits. Regarding to the claims 23-27, 29 and 41-43: The method steps are inherently necessitated by the device structure as Gaia shows it. Regarding to the claims 7, 8, 18-19, 29 and 39-40: it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed (in this case what type of electrical

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device would be protected) does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). Regarding to the claims 44-46: The functional recitations that electrical current rating of the fuse is increased above its normal electric current rating while maintaining fuse thermal capacity electrical coordination with an electrical device protected by the fuse (claims 44 and 46), and the thermal capacity electrical coordination is calculated by the current squared and multiplied by the time (claim 45) has not been given patentable weight because it is narrative in form. In order to be given patentable weight a functional recitation must be expressed as a "means" for performing the special function, as set forth in 35 USC §112, 6th paragraph, and must be supported by recitation in the claim of sufficient structure to warrant the presence of the functional language. In re Fuller, 1929 C.D. 172; 388 O.G. 279.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6, 9-12, 15, 28, 30-34, 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaia.

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Regarding to the claims 6 and 28: Gaia discloses the claimed invention except for **said fuse array has operating temperature range of approximately 0 degrees Celsius to approximately 100 degrees Celsius**. It would have been obvious to one having ordinary skill in the art at the time the invention was made to *choose such a temperature range*, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding to the claims 8-12, 15, 30-34, 36-37: Gaia discloses the claimed invention except for a list of certain requirements for a choice of materials or materials properties said electrical terminals, coolant passages and cooling fluid are made or chosen from. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make a choice of materials or materials properties said electrical terminals, coolant passages and cooling fluid are made from according to the applicant's claims, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

7. Claims 17 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gaia in view of Go et al.

Gaia teaches all the limitations of the claims except said apparatus further comprises one or more heat exchangers interposed with the one or more coolant passages for cooling the coolant fluid. Go et al teach an electronic apparatus liquid cooling system,

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Fig.1, comprising a heat exchanger 11 interposed with the coolant passage for cooling the coolant fluid. It would have been obvious to one skilled in the art at the time invention was made to employ a heat exchanger interposed with a coolant passage as it is shown by Go et al in the device by Gaia in order to enhance the heat dissipation.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Datskovsky whose telephone number is (703) 306-4535. The examiner can normally be reached on Mn - Fry 8 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren E. Schuberg can be reached on (703) 308-4815. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Patent Examiner

Michael Datskovsky



June 19, 2003